

Date: Tue, 28 Jun 94 04:30:10 PDT
From: Ham-Policy Mailing List and Newsgroup <ham-policy@ucsd.edu>
Errors-To: Ham-Policy-Errors@UCSD.Edu
Reply-To: Ham-Policy@UCSD.Edu
Precedence: Bulk
Subject: Ham-Policy Digest V94 #287
To: Ham-Policy

Ham-Policy Digest Tue, 28 Jun 94 Volume 94 : Issue 287

Today's Topics:

 Copying CW below noise
 CW ... My view. (2 msgs)
 Question about Radar Jam

Send Replies or notes for publication to: <Ham-Policy@UCSD.Edu>
Send subscription requests to: <Ham-Policy-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Policy Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-policy".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 27 Jun 1994 18:24:53 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!agate!kennish@network.ucsd.edu
Subject: Copying CW below noise
To: ham-policy@ucsd.edu

I have to agree with earlier posts - it IS possible to copy CW with
an integrated SNR below 0 dB. As someone pointed out, you can
make SNR numbers do whatever you want by monkeying with the
bandwidth. Most of us have copied audio information below
0dB SNR without knowing it. Where? The shopping mall.

Admit it... You've been at a shopping mall with Muzak, and
you are following the tune -- you can barely hear it, but you
know what the tune is, and you can follow along. If you look
at the SNR over the 20-20KHz range, the SNR will be below 0dB.

Why then can you follow along? Because you are doing a correlated
reception. You KNOW the song. You KNOW what the next note
will be, so you mentally look for a tone at that pitch, and
tune out other noise. So, your effective SNR goes up, since

the noise power in the frequency bands outside of interest is ignored. Of course, if you don't know the song, then you can't follow along with the Muzak, which is probably better in the long run :-)

Same thing with CW. You know to look for a tone at a particular pitch. Once you have the rhythm of the particular QSO down, you have a biological clock recovery going in your head, and the presence or absence of the tone can be detected even if the SNR over the 300-3KHz bandwidth is less than 0dB. Even though my code sucks, I've been able to do this with computer keyed slow code "bible" code practice stations under poor reception conditions.

-Ken

Date: 24 Jun 1994 18:13:06 GMT
From: korie!newsworthy.West.Sun.COM!abyss.West.Sun.COM!spot!myers@ames.arpa
Subject: CW ... My view.
To: ham-policy@ucsd.edu

In article lbf@chnews.intel.com, CecilMoore@delphi.com () writes:

>In article <062394064841Rnf0.78@amcomp.com>,

>Dan Pickersgill <dan@amcomp.com> wrote:

>

>>Only parts of HF require a code test? Which part of HF is it that does NOT
>>require a code test in the US? (Remember 6-Meters is VHF.) Dan

>

>Well, eleven meters is HF and doesn't require a code test in the US...

>I'm sure there are other frequencies as well.

Heck, look in Part 90; there are LMRS allocations below 30MHz. In fact, there are several "experimental" allocations between 27.405 and 28.000Mhz. I think it would be the cat's meow to build an autoforwarding digital network using those frequencies. It would (a) make use of what appears to be fallow spectrum and (b) run the freebanders off a few frequencies :-).

* Dana H. Myers KK6JQ, DoD#: j | Views expressed here are

*

* (310) 348-6043 | mine and do not necessarily *

* Dana.Myers@West.Sun.Com | reflect those of my employer

*

* This Extra supports the abolition of the 13 and 20 WPM tests *

Date: Mon, 27 Jun 1994 16:27:18 GMT
From: ihnp4.ucsd.edu!swrinde!emory!rsiatl!ke4zv!gary@network.ucsd.edu
Subject: CW ... My view.
To: ham-policy@ucsd.edu

In article <1994Jun27.044125.121874@zeus.aix.calpoly.edu>
rheiss@harp.aix.calpoly.edu (Robert Everitt Heiss) writes:

>One more view ...

>

>Once you know CW, there is a lower hurdle from being an appliance
>operator to building or even designing a homebrew rig. CW technology
>is more accessible than SSB and the minimum cost is much lower, too.

Most of the complexity of either SSB or CW is in the receiver, not the transmitter. And a receiver for one mode also typically works for the other. In the realm of transmitters, FM transmitters are about as simple as CW transmitters, and much cheaper to operate since no manhours are wasted programming wetware modems. FM receivers are simpler than most competent CW receivers too, today a single chip in many cases.

>My 35 Watt CW rig with a dipole reached out about as far as a 100 Watt
>SSB appliance with a beam, and since most hams "speak" CW, I could
>have fun "talking" with the simple little thing.

Well there's nothing inherently wrong with that approach if that's what you want to do, but the throughput is low, so conveying ideas is more cumbersome and costly than with other modes. Hams have been brainwashed into thinking distance is the only important thing, the postal card syndrome, but I think *content* of communications is an important thing. Distance is only as important as the necessity to reach the other mind you are attempting to engage in dialogue. If doing that via relay is better than direct, or if the distance to be spanned is modest, then use of equipment optimized solely for distance is the wrong direction. Equipment and methods optimized for content transfer is the right direction. We've been down this road before in a related discussion of spectral efficiency. The example I like to use to illustrate my point is the picture. It's said that a picture is worth a thousand words, and some things like circuit diagrams are best transmitted as pictures. In 8 seconds I can transfer a picture via SSTV, can you do 7,500 WPM on CW?

>Most importantly, I learned electronics while tinkering with the rig.
>I feel that spreading knowledge of RF technology is one of the main
>justifications for amateur radio. Code is a stepping stone towards
>education.

Not necessarily. It's actually a stumbling block on the way to learning

about RF. Time wasted programming the wetware modem could be spent actually experimenting with RF via FM voice equipment, or FSK data systems, for two examples. In either case a constant amplitude carrier is required, and the modulation methods are similarly simple, but for the same effort, the capacity of the information channels they open up are vastly different.

It's not necessary to brainwash another generation with the idea that Code is the gateway to all knowledge when it isn't so. Code is fun for some, and that's fine, but it's not a necessary prerequisite to learning electronics or RF technology.

As a sidelight to this discussion, I copied the MCW telemetry of a high altitude balloon over the weekend, tracking it from ground level to 100,000 feet and back down again. It was a tedious process copying telemetry numbers and hand cranking them through the calibration routines on the computer. The coding effort and code size used in the encoding microprocessor to produce that MCW could be significantly reduced by switching to a more suitable coding, such as BCD or ASCII, and fed directly into the calibration program on the computer by a simple modem. And it will for the next launch. That the programmer knew Code was actually a *hindrance* to the experiment. If he hadn't automatically *assumed* that Code was the best way to encode the telemetry, he would have used a machine friendly code from the beginning.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: Mon, 27 Jun 1994 15:41:56 GMT

From: ihnp4.ucsd.edu!news.acns.nwu.edu!news.eecs.nwu.edu!solo.eecs.nwu.edu!
hpa@network.ucsd.edu

Subject: Question about Radar Jam

To: ham-policy@ucsd.edu

Followup to: <2ub44t\$46n@bigfoot.wustl.edu>

By author: jlw3@cec3.wustl.edu (Jesse L Wei)

In newsgroup: rec.radio.amateur.policy

>

> John Maultsby (John.Maultsby@f40.n382.z1.fidonet.org) wrote:

> :

> : The FCC jurisdiction starts at *9 kHz*??? Wow.... I can just see

> : the FCC now,

> : saying "Turn that radio down, young man!" <grin>
> :
> Ha ha, very funny. Remember that the FCC jurisdiction cover transmissions,
> rather than reception. . .
>

A boombox can transmit quite a bit of audio waves at 9 kHz, at least if it has a good tweeter. The speaker will send out electromagnetic waves at the same frequency, too. However, I believe the FCC's jurisdiction starts at *19* kHz, and goes up to the vicinity of 450 GHz (the border was upped from 300 GHz; that's why part 97 lists 300 GHz as a ham band).

/hpa

--

INTERNET: hpa@nwu.edu FINGER/TALK: hpa@ahab.eecs.nwu.edu
IBM MAIL: I0050052 at IBMMAIL HAM RADIO: N9ITP or SM4TKN
FIDONET: 1:115/511 or 1:115/512 STORMNET: 181:294/101
ld error: wallet.c: _money not found

Date: Mon, 27 Jun 1994 15:36:04 GMT
From: ihnp4.ucsd.edu!news.acns.nwu.edu!news.eecs.nwu.edu!solo.eecs.nwu.edu!
hpa@network.ucsd.edu
To: ham-policy@ucsd.edu

References <1994Jun22.073541.1103@ke4zv.atl.ga.us>, <Crthtw.E1p@world.std.com>,
<2ub063\$d0d@ccnet.ccnet.com>
Reply-To : hpa@nwu.edu (H. Peter Anvin)
Subject : Re: Existing regulations limit our advancement.

Followup to: <2ub063\$d0d@ccnet.ccnet.com>
By author: rwilkins@ccnet.com (Bob Wilkins n6fri)
In newsgroup: rec.radio.amateur.policy

>
> We all seem to agree that a control operator must cut through the audio
> for a third party inward phone call. Please help me understand how a
> third party using a common carrier connection to an amateur radio service
> transmitter is allowed to key up or operate that amateur transmitter.
>
> I am confident there must be some gray area that can be exploited, but it
> is my feeling that most automatic control systems used today are in fact
> not up to the rigorous standards of part 97.
>

... which is part of the problem with the Amateur Radio Service today.
The reason is that people don't want to spend oodles of money just to

experiment, and then not get to use their stuff once they are completed. I have already been forced off ham frequencies with at least one wireless experiment of mine. :(

Either way, most reverse autopatches I have seen works that someone calls the repeater, which asks for a paging code. The idea is that if the code checks out, the repeater computer will announce

"Reverse autopatch for N9ITP this is WB9AET repeater"

... or something to that effect. N9ITP can then key up and dial his autopatch code to connect to the caller.

Some people now say this type of announcement is illegal, and that the announcement will have to wait until the next time the repeater would have automatically keyed up by clock. IMHO that is ridiculous.

/hpa

--

INTERNET: hpa@nwu.edu FINGER/TALK: hpa@ahab.eecs.nwu.edu
IBM MAIL: I0050052 at IBMMAIL HAM RADIO: N9ITP or SM4TKN
FIDONET: 1:115/511 or 1:115/512 STORMNET: 181:294/101
Denied!

Date: Mon, 27 Jun 1994 15:42:36 GMT
From: ihnp4.ucsd.edu!swrinde!emory!rsiatl!ke4zv!gary@network.ucsd.edu
To: ham-policy@ucsd.edu

References <gganderson.465.0@augustana.edu>,
<1994Jun26.143721.20150@ke4zv.atl.ga.us>, <354@ted.win.net>
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)
Subject : Re: CW...hear, touch, simplicity

In article <354@ted.win.net> mjsilva@ted.win.net (Michael Silva) writes:

>

>In article <1994Jun26.143721.20150@ke4zv.atl.ga.us>, Gary Coffman
(gary@ke4zv.atl.ga.us) writes:

>

>[..order of Gary's comments switched for emphasis..]

>

>>Things are simpler in a very real sense. Sure some of the chips
>>we use today contain thousands of transistors, but just as a
>>resistor contains thousands of tiny grains of carbon, we don't
>>care about the precise details of what's inside a component.

>

>This is not a good comparison, because the transistors in the chip are
>organized as functional blocks (current mirrors, differential pairs,
>gates, adders, etc) which a well-rounded ham *should* have some
>knowledge of.

While it wouldn't hurt to know about such internal details, same as
it wouldn't hurt to know about the detailed internal workings of
a resistor, to use these components in designs it's usually sufficient
to understand their n-port parameters and treat their internals as
a black box. We really don't have to grind our own quartz or smelt
our own copper to use components in designs.

>>Well vacuum tubes have a certain quaint charm, and still fill
>>some useful niches, but silicon is the name of the game today.
>>And advances in silicon fabrication have allowed us to build
>>radios that are *simpler* in some very real senses while still
>>being much more capable than radios of years gone by. Complete
>>IF sections are now available as a single component. DSP offers
>>filters at costs and shape factors undreamt of a couple of decades
>>ago. Complicated control and display functions can now be implemented
>>with a single chip embedded microprocessor, eliminating finicky
>>mechanical linkages and dials. Thanks to these advances, home
>>builders have it better today than ever before. I recently built
>>a complete VHF transceiver from 3 chips and a hybrid brick that
>>gives me a 5 watt rig that fits in the palm of my hand. That was
>>essentially impossible a couple of decades ago.

>

>Gary, that such radios can be built is not the question. Why aren't
>they being built? We need to ask, if builders have it better than ever
>(and I agree they do, once they figure out where to find parts), where
>are all the homebrew stations, especially above 30MHz? I think a lot
>of the problem is that peoples' expectations of VHF/UHF rigs are so high
>that they can't see the point to building one. After all, how many of
>us can build a channelized, multi-memory rig with PL and autodialer? In
>that sense, the Tech bands are the worst bands to put newcomers. I also
>wonder how many homebrew HF rigs are being constructed to be used in a
>digital station? I think that for every experimenter pushing the state
>of the art, there are a thousand hams who are scared off by the same
>SOTA. Let's take some of the effort we put into discussing DSP and cell
>technology and SS, and discuss why the majority of hams can't wire an
>op-amp to boost a microphone signal, or build an oscillator for the
>band of their choice. Rather than focusing the discussion on the SOTA,
>I'd like to see a lot more effort spent in getting hams to build
>something, anything, because that's where their education begins.
>We've lowered the entrance requirements so that almost anyone can get a
>license, so now how do we get them away from the keyboard and
>microphone and to the workbench?

I think builders are a somewhat higher percentage than one in a thousand, but not that far above that ratio. It has been thus for a long time. In the very early days, all amateur equipment had to be homebrew, but most amateurs merely copied circuits out of magazines like Home Amateur Mechanic (hence HAM). Very few actually designed their own circuits, or even fully understood the circuits that they copied. It's like that today too, except instead of slavishly copying a circuit out of a magazine, most hams just buy the radios already "copied". They still don't understand them, but like their forebearers, they can use them. It's a small percentage, as it always has been, who actually design and build hardware. Expecting more is probably folly. Other than gaining experience in following directions, and learning to solder (a toxic job the EPA wants to ban), there's very little to be gained by trying to get the common run to build. Those who would benefit from the experience you couldn't *stop* from building anyway.

Those of us who do build and experiment mostly aren't interested in "simple" projects. We're interested in doing something new, different, better. That's as it should be. So don't complain when we talk about pushing the SOTA. That's what we do. My little HT is smaller than the new Standard, and has better IMD response than any of the current crop of Japanese equipment, but it cost about \$80, and uses few "components". Simple? Yes in a way, but its *performance* isn't simple.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: 27 Jun 1994 20:57:40 GMT

From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!wupost!bigfoot.wustl.edu!cec3!
j1w3@network.ucsd.edu

To: ham-policy@ucsd.edu

References <772027217.AA01194@afarm.uucp>, <2ub44t\$46n@bigfoot.wustl.edu>,
<Cs2BLw.Fq9@eecs.nwu.edu>3

Subject : Re: Question about Radar Jam

H. Peter Anvin (hpa@solo.eecs.nwu.edu) wrote:

: By author: j1w3@cec3.wustl.edu (Jesse L Wei)

: > John Maultsby (John.Maultsby@f40.n382.z1.fidonet.org) wrote:

: > :

: > : The FCC jurisdiction starts at *9 kHz*??? Wow.... I can just see

: > : the FCC now,

: > : saying "Turn that radio down, young man!" <grin>
: > :
: > Ha ha, very funny. Remember that the FCC jurisdiction cover transmissions,
: > rather than reception. . .

: A boombox can transmit quite a bit of audio waves at 9 kHz, at least
: if it has a good tweeter. The speaker will send out electromagnetic
: waves at the same frequency, too. However, I believe the FCC's
: jurisdiction starts at *19* kHz, and goes up to the vicinity of 450 GHz
: (the border was upped from 300 GHz; that's why part 97 lists 300 GHz
: as a ham band).

Whoops, my mistake. I was thinking RF, not AF! But yeah, I think that
the FCC covers RF frequencies only. But then, 19 kHz is also covered by
good tweeters.

Date: Tue, 28 Jun 1994 04:46:19 GMT
From: ihnp4.ucsd.edu!usc!cs.utexas.edu!convex!news.duke.edu!solaris.cc.vt.edu!
news.ans.net!sitka.wsipc.wednet.edu!egreen!egreen!jmollan@network.ucsd.edu
To: ham-policy@ucsd.edu

References <215.439.1442.0NA7033D@megasystem.com>,
<062494034946Rnf0.78@amcomp.com>, <2ugalp\$ah0@crcnis1.unl.edu>
Subject : Re: CW - THE ONLY MODE!

I GUARANTEE that I can send code that no machine can copy, but that any
competent cw operator can copy. (Of course, This probably says more about
my code sending ability than it does about any particular software...)
:-)

Any, keep on hamming
73, John
AE7P

Date: Tue, 28 Jun 1994 10:19:26 GMT
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!magnus.acs.ohio-state.edu!
usenet.ins.cwru.edu!ns.mcs.kent.edu!kira.cc.uakron.edu!malgudi.oar.net!witch!ted!
mjsilva@network.ucsd.edu
To: ham-policy@ucsd.edu

References <gganderson.465.0@augustana.edu>,
<1994Jun26.143721.20150@ke4zv.atl.ga.us>,
<354@ted.win.net><1994Jun27.154236.24814@ke4zv.atl.ga.us>n.e
Reply-To : mjsilva@ted.win.net (Michael Silva)

Subject : Re: CW...hear, touch, simplicity

In article <1994Jun27.154236.24814@ke4zv.atl.ga.us>, Gary Coffman
(gary@ke4zv.atl.ga.us) writes:

>In article <354@ted.win.net> mjsilva@ted.win.net (Michael Silva) writes:
>>

>>Let's take some of the effort we put into discussing DSP and cell
>>technology and SS, and discuss why the majority of hams can't wire an
>>op-amp to boost a microphone signal, or build an oscillator for the
>>band of their choice. Rather than focusing the discussion on the SOTA,
>>I'd like to see a lot more effort spent in getting hams to build
>>something, anything, because that's where their education begins.
>>We've lowered the entrance requirements so that almost anyone can get a
>>license, so now how do we get them away from the keyboard and
>>microphone and to the workbench?

>

>I think builders are a somewhat higher percentage than one in a thousand,
>but not that far above that ratio.

Not builders, but those who are comfortable with the state of the art.
The former group is a lot bigger than the latter.

>It has been thus for a long time. In
>the very early days, all amateur equipment had to be homebrew, but most
>amateurs merely copied circuits out of magazines like Home Amateur Mechanic
>(hence HAM). Very few actually designed their own circuits, or even fully
>understood the circuits that they copied.

Copying is one way of becoming familiar with circuits and typical parts
values. There are also invaluable lessons to be learned when you turn
on the power and...it...doesn't...work.

>It's like that today too, except
>instead of slavishly copying a circuit out of a magazine, most hams just
>buy the radios already "copied".

That's just an astonishing statement. Would any of you slavish copiers
out there like to respond?

>They still don't understand them, but
>like their forebearers, they can use them. It's a small percentage, as
>it always has been, who actually design and build hardware. Expecting
>more is probably folly. Other than gaining experience in following
>directions, and learning to solder (a toxic job the EPA wants to ban),
>there's very little to be gained by trying to get the common run to
>build. Those who would benefit from the experience you couldn't *stop*
>from building anyway.

Well then, I stand in the camp of folly. My sense of human nature is that people love to discover that they can gain some control over the exotica in their lives by producing some small creation. Most hams have some fascination with electronics and technology, but I think they're intimidated by the perceived complexity of today's gear. This is where a few simple projects can be a real eye-opener and spur on further pursuits. I just want to see to it that new hams realize they can still make some or all of their own rig (even if their first attempts are slavish copies).

>

>Those of us who do build and experiment mostly aren't interested in
>"simple" projects.

But you were in the beginning. People don't go from kindergarten directly to graduate school.

>We're interested in doing something new, different,
>better. That's as it should be. So don't complain when we talk about
>pushing the SOTA. That's what we do. My little HT is smaller than the
>

Complaining? How does recommending more emphasis on the other end of the technical continuum constitute complaining? If amateur radio doesn't have many of the "common run" doing their simple and not-so-simple tinkering, then the pursuit of the SOTA rests on feet of clay.

Mike, KK6GM

End of Ham-Policy Digest V94 #287
